



EMD Series

Multi-turn Electric Actuator



EMD Multi turn Introduction

- EMD series electric actuator is for multi turn or linear motion valve such as gate valve, globe valve and other similar control valve application. It can also apply with gear box to control quarter turn valve such as butterfly valve, ball valve and plug valve etc.
- EMD series output torque range from 100N·m-610N·m. The output speeds are 18rpm-144rpm selectable. With gear-box it can output higher torque to satisfy most the valve torque requirements.
- EMD series can provide three different types from the of basic to intelligence-types that can be configured and provide feedback signals in more complex engineering solutions.



Basic type



Integration type



Intelligence type



- Cast aluminium housing
- Speed: 18~144 RPM
- High C/P ratio
- Integration: LCD display
Non-intrusive setup
- Standard IP67

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EMD Series Features

Operational Safety

F class insulation motor, with 2 built in temperature sensors to detect over-heat and protect motor operation.(H class optional)

Anti-condensation Heater

Internal heater to eliminate the condensation or moisture.

Phase Sequence Correction

Phase sequence correction feature prevents the potential damage to the actuator from wrong wiring.

Voltage Protection

Protect actuator from power surge in over voltage and low voltage situation.

Over Torque Protection

In the case of valve jams, the actuator detects over torque and shut off to prevent further damage.

Operational Diagnosis

Intelligence type have multi built in sensors to feedback signal, for control, fault alarm, operational status and data. Effectively identify any faulty situation.

Password Protection

Intelligence type with operator password protection. To prevent mis operation by non authorized personal.

Safe Manual Override

The manual override clutch can safely break off power supply to motor, in the case of debugging or emergency situation.

Absolute Encoder

A 24bits optoelectronic absolute encoder for positon record. The resolution error is less than 0.1%. This design ensures accurate position even in power loss situation.

High Strength Worm Gear

High strength aluminium alloy worm gear set, pre-assembly examination to ensure maximum transmissioin efficiency.

EMD Series Torque Model Selection

AC380V , 3 Phase, On/off (Available for startup frequency ≤ 60 times/hour)

Speed RPM	50Hz rpm	18	24	36	48	72	96	144*
	60Hz rpm	21	29	43	57	86	115	173*
Model	Torque (N. m)							
EMD10	N.m	100		100	100	70	50	40
	lbf.ft	74		74	74	52	37	30
EMD15	N.m	150		150	150	100	75	60
	lbf.ft	110		110	110	74	55	45
EMD20	N.m	200		200	200	170	150	100
	lbf.ft	148		148	148	125	111	74
EMD30	N.m	300		300	300	200	170	120
	lbf.ft	221		221	221	148	125	88
EMD40	N.m	400		350	300	250	230	150
	lbf.ft	295		260	221	184	170	111
EMD50	N.m	500		500	500	400	300	200
	lbf.ft	370		370	370	295	220	148
EMD60	N.m	610		610	610	500	400	260
	lbf.ft	450		450	450	370	295	192

AC380V , 3 Phase, Modulating (Available for startup frequency ≤ 600 times/hour)

Speed RPM	50Hz rpm	18	24	36	48	72
	60Hz rpm	21	29	43	57	86
Model	Torque (N. m)					
EMD10	N.m	100		100	100	70
	lbf.ft	74		74	74	52
EMD15	N.m	150		150	150	100
	lbf.ft	110		110	110	74
EMD20	N.m	200		200	200	170
	lbf.ft	148		148	148	125
EMD30	N.m	300		300	300	200
	lbf.ft	221		221	221	148
EMD40	N.m	400		350	300	250
	lbf.ft	295		260	221	184
EMD50	N.m	500		500	500	400
	lbf.ft	370		370	370	295
EMD60	N.m	610		610	610	500
	lbf.ft	450		450	450	370

AC220V , 1 Phase, On/off (Available for startup frequency ≤ 60 times/hour)

Speed RPM	50Hz rpm	18	24	36	48	72
	60Hz rpm	21	29	43	57	86
Model	Torque (N. m)					
EMD10	N.m	60		50	50	35
	lbf.ft	44		37	37	26
EMD40	N.m	150		130	100	50
	lbf.ft	111		96	74	37
EMD60	N.m	250		200	170	130
	lbf.ft	184		147	125	96

Note: 1、 The definition for IP68 is 7M depth and 72 hours none-leakage.

2、 Above torque is the maximum torque. Motor working time is S2-15min, with 380V voltage. For modulating type it is S4-25%, higher rpm such as 96rpm and 144rpm and EMD90 model do not have modulating available.

3、 Modulating type is not available for 220V.

4、 RPM with * has higher force of inertia. Direct driving of gate valve or other similar applications is not recommended.



- Standard IP67
- Aluminium alloy
- Anti-corrosion epoxy powder coating
- High strength alloy worm gear
- Independent wiring block

Basic Type (EMD-B)

EMD basic type adopts standard IP 67 protection grade to combat the harsh outdoor environment. IP68 standard is also optional (With 7m depth for 72 hours).

The product housing use high strength aluminium alloy that is very compact. This model provide basic limit switch, power and drive units.

Specification	
Protection	IP67 (IP68 optional)
Working	On/off S2-15 min, no more than 60 times starts / hour
Motor	Standard F class, built in heat sensors (135°C)
Input Signal	On/off Dry contacts, 5A@250Vac available
Feedback Signal	On/off <ul style="list-style-type: none"> ● Open/Close position limit feedback ● Open/Close over torque feedback ● Position feedback potentiometer
Fault Signal	On/off Motor over heat, over torque
Position Display	Mechanical pointer indicator
Manual Switch	Manual clutch
Operational protection	Over torque; motor over heat; anti condensation heater (optional)
Cable gland size	Standard 2-NPT3/4" (can upgrade to 2-NPT1") Optional 3-NPT3/4" (can upgrade to 3-NPT1")

Torque(N.m)	35-610 N m (Direct output)	
Speed (RPM)	50Hz	18、 24、 36、 48、 72、 96、 144
	60Hz	21、 29、 43、 57、 86、 115、 173
Voltage	3 Phase: AC380V(±10%) 50/60Hz(±5%) 3 phase 3 wire 1 Phase 220V optional	
Noise	Within 1m less than 70dB	
Temperature	-30 °C ... +70 °C	
Housing	Aluminium alloy	
Coating	Epoxy powder coating	
Mounting	Standard JB2920, Optional ISO5210 (A type or B type)	



- Standard IP68
- Hall switch local control
- Non-intrusive digital control
- Aluminium alloy
- Anti corrosion epoxy powder coating
- High strength alloy worm gear
- Absolute encoder
- Remote control
- LCD display

Integration Type (EMD-Y)

EMD Integral type adopts standard IP 68 protection grade to combat the harsh outdoor environment. IP68 standard is also optional (With 7m depth for 72 hours).

Integration type and above is designed with hall switch local control unit, achieving non-intrusive and easy actuator setup.

The product housing use high strength aluminium alloy that is very compact. With multiple type of signal feedback it is appropriate for application in common control system.

Specification	
Protection	Standard IP68
Working	On/off S2-15 min, no more than 60 times starts / hour
	Modulating S4-25%, no more than 600 times trigger/ hour
Motor	Standard F class, built in heat sensors (135°C)
Input Signal	On/off AC/DC 24 contro input or AC 110/220V or optoelectronic isolator
	Modulating Input 4-20mA; 0-10V,2-10V input impedance 250 Ω (4-20mA)
Feedback Signal Output	On/off <ul style="list-style-type: none"> ▪ Overall fault contact ▪ Close valve contact ▪ Open valve contact (Contact rating: 5A @ 250Vac)
	Modulating Output: 4-20 mA;0-10 V; 2-10 V Output impedance: ≤ 750 Ω (4-20 mA)
Fault Signal	On/off Overall fault alarm: Power loss, motor over heat, lack of phase, over torque, signal loss, ESD protection, wiring terminal output
	Modulating Supports signal reversal, dead zone ≤ 2%
Position Display	LCD display (percentage% display)
Local Control	Buttons(Open/Stop/Close/Local/Remote) / Infrared remote controller
Manual Switch	Manual clutch
Operational Protection	Over torque; motor over heat; anti condensation heater; auto sequence correction(only for 3 phase)
Cable gland size	Standard 2-NPT3/4" (can upgrade to 2-NPT1") Optional 3-NPT3/4" (can upgrade to 3-NPT1")

Torque(N.m)	35-610Nm (Direct output)	
Speed (RPM)	50Hz	18、 24、 36、 48、 72、 96、 144
	60Hz	21、 29、 43、 57、 86、 115、 173
Voltage	3 phase: AC380V(±10%) 50/60Hz(±5%) 3 phase 3 wire 1 Phase 220V optional	
Noise	Within 1m less than 70dB	
Temperature	-30 °C ... +70 °C	
Housing	Aluminium alloy	
Coating	Epoxy powder coating	
Mounting	Standard JB2920, Optional ISO5210 (A type or B type)	



- Standard IP68
- Hall switch local control
- Non-intrusive digital control
- Aluminium alloy
- Anti corrosion epoxy powder coating
- High strength alloy worm gear
- Absolute encoder
- Remote control
- LCD display
- Adjustable torque output

Intelligence Type (EMD-I)

EMD Intelligence type adopts standard IP 68 protection grade to combat the harsh outdoor environment. IP68 standard is also optional (With 7m depth for 72 hours).

Intelligence type and above is designed with hall switch local control unit, achieving non-intrusive and easy actuator setup.

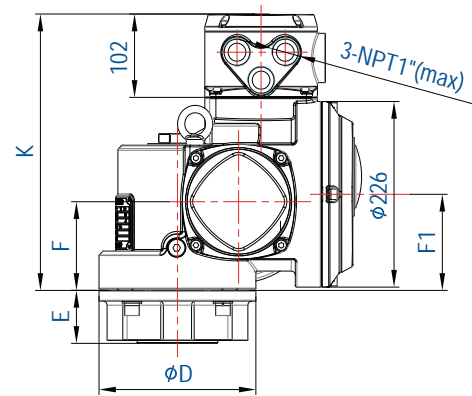
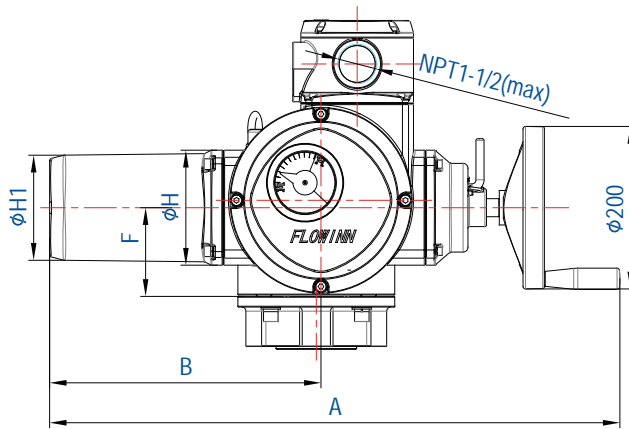
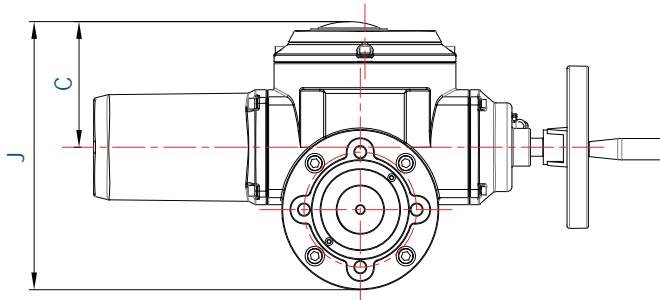
The product housing use high strength aluminium alloy that is very compact. With multiple type of signal feedback it is appropriate for application in common control system.

Specification	
Protection	Standard IP68
Working	On/off S2-15 min, no more than 60 times starts / hour
	Modulating S4-25%, no more than 600 times trigger/ hour
Motor	Standard F class, built in heat sensors (135°C)
Input Signal	On/off AC/DC 24 contro input or AC 110/220V or optoelectronic isolator
	Modulating Input 4-20mA; 0-10V, 2-10V input impedance 250 Ω (4-20mA)
Feedback Signal Output	On/off <ul style="list-style-type: none"> ▪ Overall fault contact ▪ Close valve contact ▪ Open valve contact (Contact rating: 5A @ 250Vac)
	Modulating Output: 4 - 20 mA; 0 - 10 V; 2 - 10 V Output impedance: ≤ 750 Ω (4 - 20 mA)
Fault Signal	On/off Overall fault alarm: Power loss, motor over heat, lack of phase, over torque, signal loss, ESD protection, wiring terminal output
	Modulating Supports signal reversal, dead zone ≤ 2%
Position Display	LCD display (percentage% display)
Local Control	Buttons(Open/Stop/Close/Local/Remote) / Infrared remote controller
Manual Switch	Manual clutch
Operational Protection	Over torque; motor over heat; anti condensation heater; auto sequence correction(only for 3 phase), alarm signal
Cable gland size	Standard 2-NPT3/4" (can upgrade to 2-NPT1") Optional 3-NPT3/4" (can upgrade to 3-NPT1")

Torque(N.m)	35-610Nm (Direct output)	
Speed (RPM)	50Hz	18、 24、 36、 48、 72、 96、 144
	60Hz	21、 29、 43、 57、 86、 115、 173
Voltage	3 phase: AC380V(±10%) 50/60Hz(±5%) 3 phase 3 wire 1 Phase 220V optional	
Noise	Within 1m less than 70dB	
Temperature	-30 ℃ ... +70 ℃	
Housing	Aluminium alloy	
Coating	Epoxy powder coating	
Mounting	Standard JB2920, Optional ISO5210 (A type or B type)	

Basic Type

Unit: mm



Dimension

Unit: mm

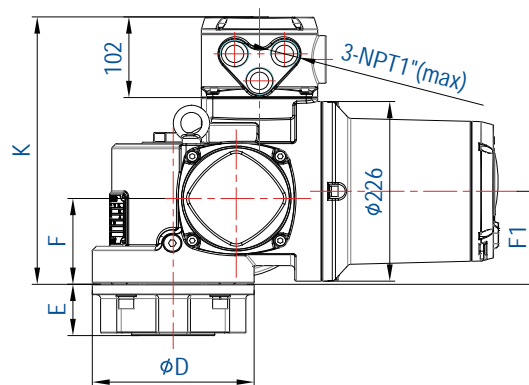
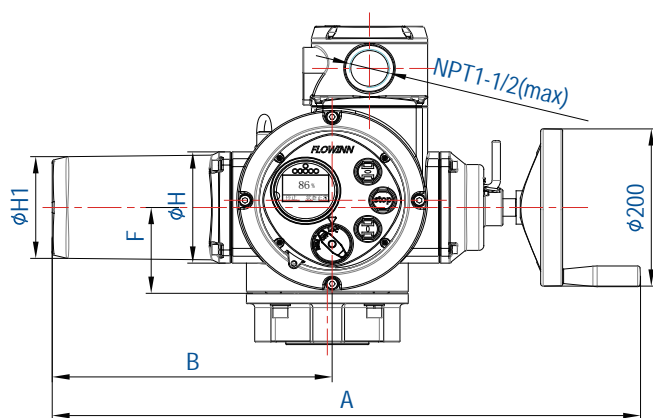
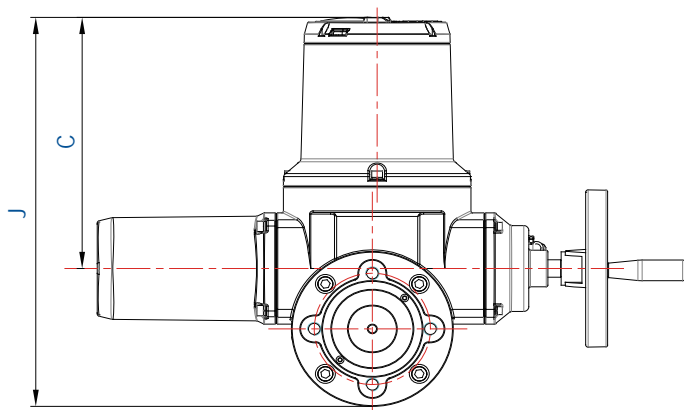
Model	Size	A	B	C	ΦD	E			F	F1	ΦH	ΦH1	J	K	Weight (kg)
						JB	Type A	Type B							
EMD10/15		657	286	153	195	2	50	40	108	117	140	98	387	337	30
EMD20/30/40		710	338	153	195	2	65	42	114	117	140	128	490	337	36
EMD50/60		760	382	160	234	2	65	42	114	118	161	148	545	337	47

Note:

Connection size is in accordance to ISO5210. Special requirement can be customized.

Integration Type / Intelligence Type

Unit: mm



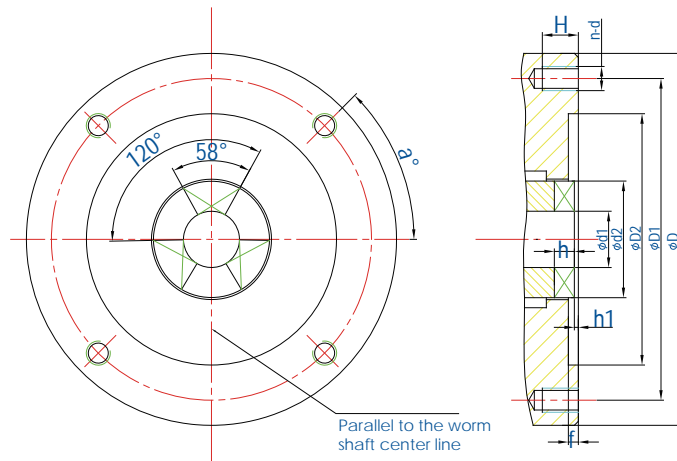
Dimension

Unit: mm

Model	Size			ΦD	E			F	F1	ΦH	ΦH1	J	K	Weight (kg)
	A	B	C		JB	Type A	Type B							
EMD10/15	657	286	337	195	2	50	40	108	117	140	98	387	337	30
EMD20/30/40	710	338	316	195	2	65	42	108	117	140	128	490	337	36
EMD50/60	760	382	332	234	2	65	42	114	118	161	148	545	337	47

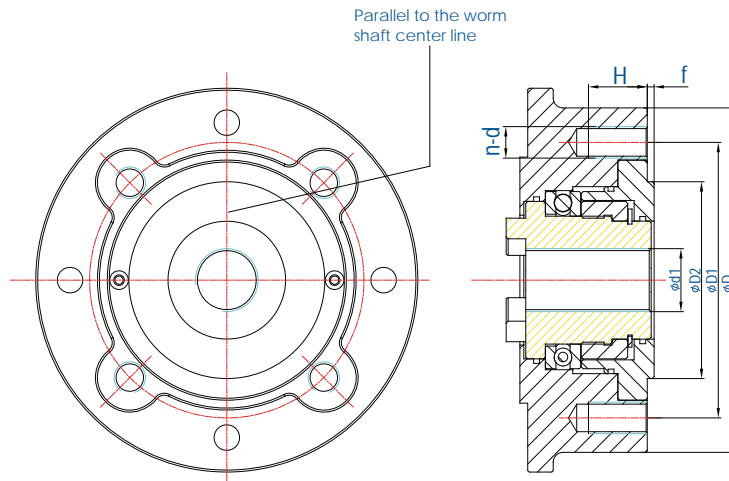
Note:

1. Integral type and Intelligent type have the same dimension.
2. Connection size is in accordance to ISO5210. Special requirement can be customized.



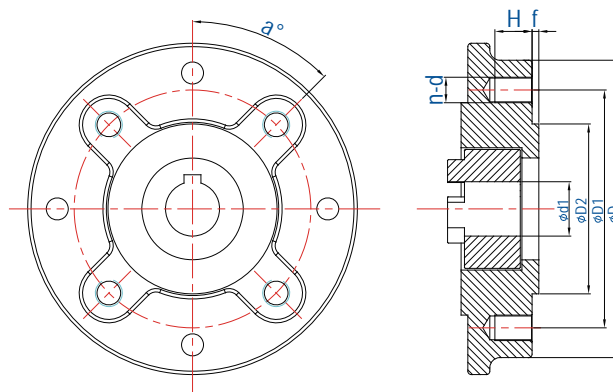
JB type output (Three jaw coupling - rotary type) --JB2920 Standard

Mounting												
Model	Size	ΦD	$\Phi D1$	$\Phi D2$	h1	f	h	d1	d2	n-d	a	H
EMD10/15	JB2	145	120	90	2	5	8	30	45	4-M10	45°	15
EMD20/30/40	JB3	185	160	125	2	5	10	42	58	4-M12	45°	15
EMD50/60	JB4	225	195	150	2	5	12	50	72	4-M16	45°	30



A type output (Thrust type) —ISO5210 Standard

Mounting											
Model	Type	Flange	ΦD	$\Phi D1$	$\Phi D2$	f	$\phi d1$ Max.	$\phi d1$ Standard	n-d	a	H
EMD10/15	F10	F10	120	102	70	4	Tr32	≤Tr30	4-M10	45°	15
EMD20/30/40	F14	F14	175	140	100	4	Tr48	≤Tr42	4-M16	45°	24
EMD50/60	F16	F16	205	165	130	5	Tr62	≤Tr50	4-M20	45°	30



B type output (Rotary type) —ISO5210 Standard

Mounting											
Model	Size	Flange	ΦD	$\Phi D1$	$\Phi D2$	f	$\Phi d1$ Max.	$\Phi d1$ Standard	n-d	a	H
EMD10/15		F10	120	102	70	4	32	≤ 30	4-M10	45°	15
EMD20/30/40		F14	175	140	100	4	48	≤ 42	4-M16	45°	24
EMD50/60		F16	205	165	130	5	62	≤ 50	4-M20	45°	30

Our service

professional service team is ready to provide our customers with comprehensive services and professional technical supports at all times:

- No matter it is by phone, mail or on the site, we are standing by for your inquiry.
- Stable dellivery time.
- On-site installation and debugging
- Regularly follow up our products status and maintenance.
- We provide training for structure knowledge, operation, debugging, maintenance and more.

CUSTOMIZED PRODUCTION





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